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*Indian Standard*

## FISHING GEAR MATERIALS — METHOD OF TEST

PART 9 DETERMINATION OF WEATHERING RESISTANCE

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NEW DELHI 110002

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Price Group 1

## **FOREWORD**

**This Indian Standard ( Part 9 ) was adopted by the Bureau of Indian Standards, after the draft finalized by the Textile Materials for Marine/Fishing Purposes Sectional Committee had been approved by the Textile Division Council.**

**Weathering** denotes the deterioration caused by weather which includes many components like sunlight, temperature, moisture, wind, dust, storm, presence of ozone, etc but the factors most responsible for changes in polymeric materials are sunlight particularly in the near UV region.

**Weathering** as cited in this standard refers to the deterioration caused by UV rays from a known source.

**In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values ( revised )'.**

## *Indian Standard*

# FISHING GEAR MATERIALS — METHOD OF TEST

## PART 9 DETERMINATION OF WEATHERING RESISTANCE

### 1 SCOPE

The standard ( Part 9 ) prescribes a method for the determination of weathering resistance of netting yarns.

### 2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard:

<i>IS No.</i>	<i>Title</i>
4640 : 1993	Fishing nets — Designation of netting yarns in the tex system
5815 ( Part 4 ) : 1971	Method of test for fishing gear materials : Part 4 Determination of breaking load and knot breaking load

### 3 TERMINOLOGY

#### 3.1 Weathering

Deterioration caused to netting yarns by exposure to UV rays from a known source.

### 4 PRINCIPLES

The specimen is exposed to UV rays from a known source and the deterioration is measured by the retention of breaking load expressed as percent of the original against the exposure period.

### 5 APPARATUS

Several types of apparatus with different exposure conditions and source of light are available. Report should, therefore, incorporate the type of apparatus used for the test.

#### 5.1 UV Irradiation Chamber

Apparatus consists of a wooden chamber of the design given in Fig. 1. Two UV lamps of 30 W and 90 cm length installed in the centre form the source of light. Netting yarns of suitable length are attached to two rings of diameter 50 cm fixed at the lower and upper edges of the chamber with the source of light at the centre. The relative humidity inside the chamber is maintained by placing saturated solution of sodium chloride inside the chamber. Provision is made to read the exposure period with the help of a timer and relative humidity

by a hygrometer. The UV output from one lamp is  $85 \mu\text{W cm}^{-2}$  at 1 m distance.

#### 5.2 Xenotest 150

**5.2.1** The light source is Xe 1500 and the light emitted is very close to natural sunlight both in the visible and UV regions of the spectrum.

**5.2.2** The xenon arc is placed vertically in the upper part and is surrounded in close proximity by an inner cylinder of quartz glass and an outer cylinder of filter glass to filter out the short UV below 290 nm. Between the two cylindrical glass there are additional infra red filters which are cooled by strong current of air.

**5.2.3** A rotating frame carrying specimen holders rotates at 5 rpm. Each specimen holder rotates about its own axis through  $180^\circ$  with each revolution so that the specimen previously in the radiation are in shade during subsequent revolution and *vice versa*. There is provision to read the temperature and relative humidity and simulate rainfall in the apparatus.

### 6 TEST PROCEDURE

Expose the specimen for test to UV rays from the light source in the apparatus. Note the temperature and relative humidity inside the apparatus initially and during experimentation. Determine the breaking load of the samples initially and at regular intervals on exposure [ see IS 5815 ( Part 4 ) : 1971 ] and correlate with the exposure period.

### 7 CALCULATION AND EXPRESSION OF THE RESULTS

**7.1** The regression,  $Y = a - bX$  correlates the retention of breaking load, % (  $Y$  ) and exposure period (  $X$  ).

**7.1.1**  $a$  and  $b$  are constants with  $b$  representing the rate of deterioration.

**7.2** A netting yarn is considered unserviceable when it loses 50 percent of its original breaking load.

### 8 REPORT

The report shall state the following:

- a) Reference to this Indian Standard,
- b) Designation of netting yarn as per IS 4640 : 1993,

- c) Type of equipment used,  
 i) Apparatus used for exposure  
 ii) Apparatus used for breaking load determination
- d) Number of observations, and  
 e) Rate of deterioration calculated as per 7.

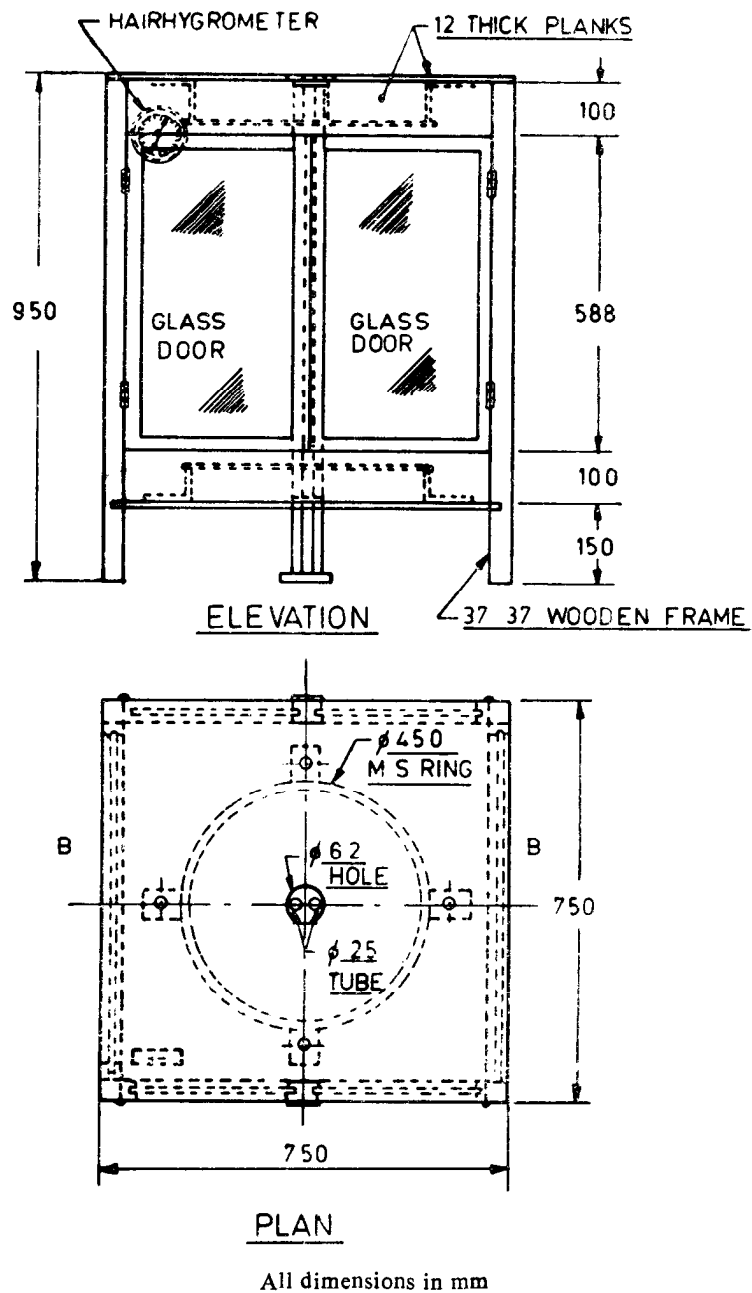


FIG. 1 ULTRA VIOLET IRRADIATION CHAMBER

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